

CLAIMS

1. A method of reactive power regulation in an electrical network, comprising:

electrical power by an electrical generator driven by the rotor of a wind power installation and modulating the power by means of a compensation device between the generator and the network for the compensation of reactive power by adaptation of the phase and/or amplitude of the reactive power component of the delivered electrical power, regulating the compensation device so that the electrical power delivered to the consumer has a reactive power component which is adapted in respect of its phase and/or amplitude and in respect of its frequency to the consumer to compensate for the reactive power in the consumer.

2. The method according to claim 1 wherein the compensation device is so regulated that the electrical generator produces capacitive reactive power in order to compensate for the inductive reactive power in the consumer.

3. The method according to claim 1 wherein the delivered electrical power is of a frequency which corresponds to the frequency of the reactive power caused by the consumer or represents a multiple of said frequency.

4. The method according to at least one of claim 1 wherein the compensation device operates as an inverter.

5. The method according to claim 1 wherein the compensation device measures the voltage and/or current configurations in the electrical network, preferably at the feed-in point of the electrical power into the

network, and in dependence on the measurement results regulates the reactive power component in the electrical power produced by the electrical generator.

6. The method according to claim 1 wherein the voltage produced by the electrical generator is regulated substantially to a predetermined reference value with suitable adaptation of the reactive power component in the electrical power delivered to the consumer.

7. The method according to claim 6 wherein adaptation of the reactive power component is effected by suitable control of the power factor ($\cos \varphi$) or the phase of the current produced by the electrical generator.

8. The method according to claim 6 in which the electrical generator is connected to an electrical network by way of a line and/or a transformer, further including the step of:

regulating the voltage produced by the electrical generator so that the value thereof is of the order of magnitude of the value of the network voltage or corresponds to the value of the network voltage.

9. An apparatus for producing electrical energy in an electrical network, comprising:

an electrical generator;
a compensation device between the generator and the network for the compensation of reactive power by adaptation of the phase and/or amplitude of the reactive power component of the delivered electrical power; and

a regulating device which regulates the compensation device in such a way that the electrical power delivered to the consumer has a reactive power component which is adapted in respect of its phase and/or amplitude and in respect of its frequency to the consumer to compensate for the reactive power in the consumer.

10. The apparatus according to claim 9 wherein the regulating device regulates the compensation device in such a way that the electrical generator produces capacitive reactive power in order to compensate for the inductive reactive power in the consumer.

11. The apparatus according to claim 9 wherein the delivered electrical power is of a frequency which corresponds to the frequency of the reactive power caused by the consumer and represents a multiple of said frequency.

12. The apparatus according to claim 9 wherein the compensation device has an inverter.

13. The apparatus according to claim 9 wherein the regulating device has a measuring device for detecting the voltage and/or current configurations in the electrical network, preferably at the feed-in point of the electrical power into the network.

14. The apparatus according to claim 12 wherein the regulating device controls the inverter in dependence on the measurement results of the measuring device.

15. The apparatus according to claim 9 wherein the regulating device regulates the voltage produced by the electrical generator substantially to a predetermined reference value by control of the reactive power component in the electrical power delivered to the consumer.

16. The apparatus according to claim 15 wherein the regulating device effects adaptation of the reactive power component by suitable control of the power factor ($\cos \varphi$) or the phase of the current delivered by the electrical generator.

17. The apparatus according to claim 15 wherein the electrical generator is connected to an electrical network by way of a line and/or a transformer characterised in that the regulating device regulates the voltage produced by the electrical generator in such a way that the value thereof is of the order of magnitude of the value of the network voltage or corresponds to the value of the network voltage.